



## STS-94

Columbia (23rd flight)  
85th Shuttle flight  
Target launch date: July 1  
Pad: 39A  
Mission: Microgravity Science Laboratory-1  
Crew: Halsell; Still; Voss; Gernhardt; Thomas; Crouch; Linteris.  
Milestones: Rollover to the Vehicle Assembly Building, June 4.  
Rollout to pad, June 11.

## STS-85

Discovery (23rd flight)  
86th Shuttle flight  
Target launch date: Aug. 7  
Pad: 39A  
Crew: Brown; Rominger; Davis; Curbeam; Robinson; Tryggvason  
Milestones: Crew Equipment Interface Test, June 13



A booster segment for the STS-85 stack is transported to the Vehicle Assembly Building, passing en route a Mobile Launcher Platform undergoing servicing in the park site to the north.



The Japanese Manipulator Flight Demonstration (MFD) is installed in Discovery's payload bay in Orbiter Processing Facility Bay 2.

# Spaceport News

*America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.*

John F. Kennedy Space Center

## KSC team ready for arrival of first International Space Station element

The International Space Station (ISS) program is the largest and most ambitious space effort since the Apollo lunar landing project and the largest international science program ever.

ISS Flight 2A will be the first International Space Station element launched from the United States, slated for July 1998 on Shuttle Mission STS-88. Flight 2A consists of Node 1 and Pressurized Mating Adapters (PMAs) 1 & 2. Once on-orbit, Node 1 serves as a key-connecting point for other space station modules and orbiter docking. Node 1 arrives first at KSC's Shuttle Landing Facility via a USAF C-5 cargo transport aircraft in late June.

Early assembly of the station will involve elements deployed from vehicles launched in Russia alternating with ones from Florida launched on the Shuttle.

Three space program veterans are leading the KSC team preparing for Node 1 arrival and Flight 2A launch site processing. The formation of a three-member team to lead the processing is in itself a first at KSC and reflects the challenges of such a complex project.



THE THREE payload managers overseeing processing of the first International Space Station element at KSC — Node 1 and two Pressurized Mating Adapters — are (from left) Rick Pepper, McDonnell Douglas; Jim Thews, Boeing; and Glenn Snyder, NASA/KSC. Behind them in the Space Station Processing Facility is the Element Rotation Stand. The Node 1 will be placed in this stand for acceptance and checkout testing after it arrives at KSC June 23. The three veteran managers have a combined 50 years of experience in the space program.

The NASA payload manager, Glenn Snyder, has 26 years of space program experience, 11 of them as a payload manager. Rick Pepper, who is the payload manager for McDonnell Douglas as the Payload Ground Operations Contractor (PGOC) at KSC, has been processing payloads for 10 years. Jim Thews

represents the Space Station Prime Contractor, Boeing, and has over 14 years of KSC and Cape Canaveral Air Station experience.

Each lead provides a different launch site function for the International Space Station program. Snyder depicts his role

(See NODE, Page 2)

## Wanted: Winning slogan for this year's CFC fund drive

Civil service employees are asked to submit their ideas for a slogan for KSC's 1997 Combined Federal Campaign (CFC), which begins Oct. 1.

This year's Brevard County campaign theme is *Helping in All the Right Places*.

E-mail your suggestion(s) to: Harry.Silipo-1@ksc.nasa.gov no

later than June 13 to be eligible for consideration.

The winner will receive four tickets to a Marlins spring training game.

There also will be a drawing from the names of all employees who submit suggestions to win four tickets to the Manatees' final home game on Aug.

30, which is Manatees' United Way Night.



## Node. . .

(Continued from Page 1)

and that of the PGO C as a host to the prime contractor, Boeing, during their off-line operations. The off-line activities are in the initial stages of launch site processing where Boeing has the lead for the acceptance and checkout of Node 1 and PMAs 1 and 2. Once the hardware is turned over to NASA, then the lead roles will shift and NASA-KSC/PGOC will be responsible for Shuttle integration activities with Boeing providing the required support.

"Our roles change throughout the flow, which is not uncommon for a payload," said Thews.

Preflight checkout of the node will take place in the Space Station Processing Facility (SSPF) high bay, which features an air-bearing compatible floor. KSC designed and built much of the ground support equipment located here, including work stands and the Launch Package Integration Stand (LPIS) — the equivalent of the Cargo Integration Test Equipment (CITE) stand used for many years in the Operations and Checkout Building, but moveable on its air-bearing supports.

Other features of the high bay include stub-ups — electrical outlets in the floor rather than on the wall; tunnels underneath the floor to make it easier to perform maintenance without impacting operations and catwalks to access cable trays easily and efficiently.

The high bay features eight "footprints," four on each side of a transfer aisle. Each footprint is outfitted with facility services through stub-ups accessed in the floor for interconnection to payload ground support equipment that will be used for testing and processing of payloads. Footprints 3 and 5 will be used for processing of the Node and the PMAs.

PMA 1 will provide the interface between U.S. and Russian elements of the station, while PMA 2 will provide a Shuttle docking location.

## Node 1 in a Nutshell

- **Node 1** is the first of two Nodes to be deployed. It is 166 inches in diameter and about 188 inches long. It features six 50-inch ports that will serve as connecting points for: 1) a truss; 2) the U.S. laboratory; 3) an airlock; 4) the U.S. habitation module; 5) the MiniPayload Logistics Module (MPLM); and 6) the Russian Functional Cargo Block (known by its Russian acronym, FGB), the first station element to be launched. Resources to be routed through the node include power and data, environmental control and life support systems (ECLSS), fluids and during the early stages of assembly, communications.

- **The Node's design** is far from simple. Its avionics system alone includes almost six miles of wire. Other features include 227 thermal protection blankets and 49 meteoroid debris shields, and 52 ducts as part of the ECLSS design.

- **The Node**, with the Pressurized Mating Adaptors (PMA 1 and PMA 2) already connected to its axial ports, will be deployed during Mission STS-88. Using the Shuttle's Remote Manipulator System arm, the Node 1/PMA assembly will be attached to the orbiter external airlock. The orbiter will then rendezvous with the FGB and the robot arm will be used to attach the FGB to the Node 1/PMA assembly, bringing together like two building blocks the first pieces of the station. Over the course of three extravehicular activities, the Shuttle crew will activate Node 1 systems.

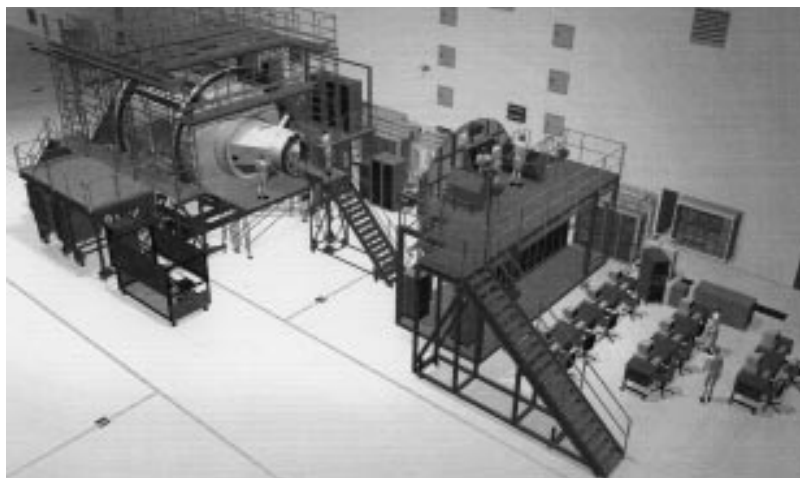
The Node and PMAs 1 and 2 will undergo acceptance and checkout testing in the Element Rotation Stand (see illustration below). Additional preflight work includes:

- Completion of the factory assembly & checkout;
- Node 1 and PMA 1 Acceptance Testing;
- Cargo Element Integration Testing (CEIT);
- A communication End-To-End test with Mission Control in Houston;
- Checkout of the Node 1 and PMAs for air leaks;
- Installation and survey of optical targets. The Node/PMA assembly will feature the Canadian-supplied Space Vision System navigation targets;
- Toxicology test, or the "new car smell" test. Samples of the air inside the Node will be collected throughout its stay at

KSC for trending purposes. This is a standard procedure for new flight hardware;

- A payload/orbiter interface verification test (IVT) at the pad. Unlike most IVTs which are performed after the payload has been installed in the orbiter's payload bay, the IVT of the Node 1/PMAs assembly will be conducted with it held outside the payload bay by the Payload Ground Handling Mechanism, located in the Payload Changeout Room at the pad.

In an age of e-mail, faxes and the Internet, the three payload managers have found that old-fashioned, face-to-face meetings are the way to go, given the complexity of the program. With participants located across the country and overseas, bringing people together at the same table has helped forge a cohesive team that is ready to go.



THIS computer-generated drawing shows Node 1 (left) in the Element Rotation Stand in the Space Station Processing Facility high bay.

## International Space Station Assembly Sequence: First Six Flights

### Flight Key

A= American flight

R= Russian flight

Number represents chronological order of flight, e.g., 1 A/R is the first assembly flight and is a joint U.S.-Russian endeavor.

### June 1998

Flight: 1A/R Launcher: Russian

Element(s): Functional Cargo Block (FGB)

Provides propulsive control capability and power through early assembly stages; also provides fuel storage capability and rendezvous and docking capability to the Service Module.

### July 1998

Flight: 2A/U.S. Shuttle (STS-88)

Element(s): Node 1 and PMA-1 & -2.

Eventually, Node 1's six ports will provide connecting points for the Z1 truss; U.S. lab; airlock; cupola; U.S. habitation module; and the early MPLM as well as the FGB.

### December 1998

Flight: 1R/Russian launcher

Element(s): Service Module. Primary

Russian element. It provides Environmental Control & Life Support System (ECLSS) functions to all elements. Primary docking for Progress type resupply vehicles. Provides propulsive attitude control and reboost capability. Recent delays in development of this module prompted the overall slip in the station launch schedule.

### December 1998

Flight 2A.1/U.S. Shuttle (STS-96)

Element(s): TBD Logistics. Possible offloading of some cargo from 3A, 4A and 5A. Adds margin and flexibility to assembly sequence. This flight was just added to the assembly schedule to increase margin and add flexibility.

### January 1999

Flight: 3A/U.S. Shuttle (STS-92)

Element(s): Integrated Truss Structure (ITS) Z1; PMA 3; Ku-band Control Moment Gyros (CMGs). ITS Z1 allows temporary installation of the P6 Photovoltaic (PV) module to Node 1 for early U.S.-based power. Ku-band communication system supports early science capability on 6A. CMGs provide non-propulsive attitude control when activated on 5A. PMA 3 provides a Shuttle docking for the P6 PV Module on 4A and lab installation on flight 5A.

### January 1999

Flight: 2R/Russian launcher

Element(s): Soyuz. Establishes first station manning with three-person crew of International Space Station Commander Bill Shepherd (U.S.); Soyuz Commander Yuri Gidzenko; and Flight Engineer Sergei Krikalev. The Soyuz provides assured crew return capability without the orbiter present.

# 1996 KENNEDY SPACE CENTER ANNUAL HONOR AWARDS



The 1996 Kennedy Space Center Annual Honor Awards Ceremony was held June 4 in the Visitor Center IMAX Theater I. More than 200 employees were recognized for their efforts in 1996 that contributed significantly to the Center's mission. Among the honors presented were the KSC Director's Award, the Equal Opportunity Award, two Presidential Executive Rank Awards and two Service Awards. Individual and group awards recognized contributions to every aspect of KSC work, from visitor attractions to Space Shuttle and payload processing and launch.

## KSC Director's Award



**Ann D. Montgomery**

The Director's Award is the highest award that the Center confers on an employee. The award honors the accomplishment of a job-related task of such magnitude and merit as to deserve special Center recognition. **Ann Montgomery** was recognized for her leadership in providing an agency model for planning, coordination and partnering with contractor counterparts in the transition to the Space Flight Operations Contract (SFOC).

## NASA Distinguished Public Service Medal

The Distinguished Public Service Medal is awarded to any individual who is not an employee of the federal government or was not a government employee during the period in which the service was performed. The award is granted only to individuals whose distinguished accomplishments contributed substantially to the NASA mission. The contribution must be so extraordinary that other forms of recognition by NASA would be inadequate. This is the highest honor that NASA confers on a non-government individual and is presented at the NASA Headquarters Annual Honor Awards Ceremony in Washington, DC.



**Lee D. Solid**, vice president/general manager, Rockwell (now Boeing)

**Lee Solid** was praised for outstanding supervision in the transition of the logistics contract to United Space Alliance, as well as contributing to the development of a race car product from Shuttle insulation material.

**Jerry Oppliger** was honored for outstanding contributions to the Shuttle program during his service as program manager for the Shuttle Processing Contract.

**George Faenza** was recognized for his management and leadership of the Payload Ground Operations Contract.



**Gerald T. Oppliger**, president (retired), Lockheed Martin Space Operations (now USA)



**George R. Faenza**, vice president/general manager (retired), McDonnell Douglas Aerospace and Defense Systems

## 1996 Presidential Executive Rank Award



**Alan J. Parrish**

This award is granted by the President to career members of the Senior Executive Service (SES) whose performance has been exceptional for at least three years. The award recognizes sustained extraordinary or superior accomplishment in the management of programs of the U.S. government and for noteworthy achievement of quality and efficiency in the public service:

Distinguished Executive Rank Award — **Jay F. Honeycutt** (retired)  
Meritorious Executive Rank Award — **Alan J. Parrish** (retired)



**Jay F. Honeycutt**

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## KSC Equal Opportunity Award

This award is granted to any KSC employee or supervisor for outstanding contributions to equal opportunity. Examples of the types of contributions for which the award might be granted include: encouraging self-development and training among minorities and women; assigning minority and women employees to organizational tasks which broaden their experience; suggesting affirmative actions which alleviate problems peculiar to minorities and women; and, assigning minorities and women to tasks which encourage full utilization of their skills.



Arthur D. Flowers

## NASA Outstanding Leadership Medal

The NASA Outstanding Leadership Medal is awarded for notably outstanding leadership which has had a pronounced effect upon the technical or administrative programs of NASA. The award may be given for an act of leadership or for sustained contributions based on an individual's effectiveness as a leader, the productivity of an individual's program, or demonstrated ability to develop the administrative or technical talents of other employees.



Scott D. Kerr



Dr. Irene Long



Stephen C. Robling



Walter J. Stampley Jr.



Ann H. Watson (retired)



Carol A. Whitcomb

## NASA Equal Employment Opportunity Medal

The NASA Equal Employment Opportunity Medal is awarded for outstanding achievement and material contribution to the goals of NASA's Equal Employment Opportunity (EEO) programs either within government or within community organizations or groups.



James A. Thomas (retired)

## KSC Secretary of the Year

This award is granted to a KSC employee serving in a secretarial position who has demonstrated exemplary performance of official duties over an extended period of time, or a significant one-time accomplishment directly related to official duties. The nominee's performance must also have been characterized by a high degree of personal integrity, judgment and responsibility.



Mary L. Boger

## KSC Service Award

This award is given in grateful recognition and appreciation of faithful service in the National Aeronautics and Space Administration and the government of the United States of America.



40 years. Marvin Jones



40 years. Norbert G. Violette

## NASA Exceptional Service Medal

The NASA Exceptional Service Medal is awarded for significant performance characterized by unusual initiative or creative ability that clearly demonstrates substantial improvements or contributions in engineering, aeronautics, space flight, administration, support, or space-related endeavors which contribute to the mission of NASA.

Coleman J. Bryan  
Marjorie Elrod  
(retired)  
Albert R. Hight  
John T. Madura

Cynthia M. Martin  
Mack McKinney  
Larry E. Morgan  
Donald J. Schiller  
Richard S. Schneider

Jimmy L. Shehane  
Wendell A. Simpson  
Gene B. Thurston  
Oscar Toledo  
Ned A. Voska II

Darrow L. Webb

## NASA Group Achievement Award

The NASA Group Achievement Award is given in recognition of an outstanding accomplishment which has been made through the coordination of many individual efforts and has contributed substantially to the accomplishment of the NASA mission. This award recognizes the accomplishments of either a total government employee group or a group comprised of both government and non-government personnel.

- Ammonia Servicing for International Space Station Processing Team
- Automated Penbase Problem Reporting System Team
- Base Operations Contract Energy Management Team
- Base Operations Contract Maintenance Program Team
- Base Operations Contract Propellants Recovery Team
- Configurable Protocol Interface Card Development and Production Team
- Corrosion Control Facility Process Assessment Team
- Emergency Power Plant Investigation Repair and Design Team
- Fast Retrieval of Enterprise Data Development Team
- Filter Refurbishment Team
- KSC Alternative Dispute Resolution Team
- KSC Expendable Launch Vehicle Quality Division
- KSC Shuttle Processing Human Factors Team
- Lockheed Martin Space Operations Cable Department
- Natural Resources Group
- Navigation Aids Flight Certification Team
- Orbiter Real-Time Data Team
- Payload Ground Operations Contract Payload Data Management System Administrators
- Payload Ground Operations Contract Rack Insertion Device Design Team
- Television and Feature Film Production Team
- USA Record and Playback Systems, Operations and Maintenance Team

## Special Mention KSC Group Achievement Award

- Emergency Response and Recovery Team

## NASA Public Service Medal

The NASA Public Service Medal is granted for exceptional contributions to the mission of NASA. The award may be given to any individual who was not a government employee during the period in which the service was performed.

<b>Rick Abramson</b>	<b>Kenneth R. Oyer</b>	<b>Renee Vanderbrink</b>
<b>Douglas L. Britt</b>	<b>Donald C. Schedler</b>	<b>Kenneth C. Walla</b>
<b>Frank Kinney</b>	<b>James R. Schofield</b>	<b>Dennis Weaver</b>

## NASA Exceptional Achievement Medal

The NASA Exceptional Achievement Medal is awarded for a significant, specific accomplishment or contribution clearly characterized by a substantial and significant improvement in operations, efficiency, service, financial savings, science or technology which contributes to the mission of NASA.

<b>James E. Ball</b>	<b>Linda K. Buckles</b>	<b>Barbara Lockley</b>
<b>Pamela M. Biegert</b>	<b>Karen Corne</b>	<b>Kirk Loughheed</b>
<b>J. Bryan Boatright</b>	<b>David L. Facemire</b>	<b>Nicole M. Passonno</b>
	<b>Rita G. Willcoxon</b>	



## KSC Certificate Of Commendation

This award recognizes exceptional individual accomplishments or outstanding direction or management of a program or program segment which affects the entire Center or contributes significantly to the Center's mission.

David L. Adcock  
Clifton T. Arnold Jr.  
Timothy S. Barth  
William Bartley  
Saul Barton  
Deborah L. Bitner  
Timothy S. Bond  
Karon J. Buchner  
Mario Busacca  
Rosa N. Caudle  
Carol A. Cavanaugh  
Peter Chuley Jr.  
Jessie V. Clarke  
Roy M. Colvin  
David R. Cox  
Joseph T. DeLai  
Eric E. Dirschka  
Charles P. Dovale  
James C. Draus  
Thomas Draus  
Stephen P. Ernest  
Valarie J. Franklin  
Charles A. Gambaro  
Elizabeth C. Godfrey  
Joseph L. Green (retired)  
Charles H. Griffin  
George Hamilton  
Robert R. Hammond  
William R. Harrison  
Paul G. Henderson  
Gary D. Hendricks  
Robert M. Hill  
Marlo F. Krisberg  
Jennifer C. Kunz  
Douglas Kverek  
Chau B. Le  
John D. Lekki  
Laurel A. Lichtenberger  
Alan C. Littlefield  
Kule M. Longstreth

Maria Lopez-Tellado  
Launa M. Maier  
Edward M. Markowski  
Kenneth W. Mathews  
Lawrence T. Mauk  
Roslyn J. McKinney  
Amanda M. Mitskevich  
Barbara M. Moretto  
Michael Murray  
Cuong C. Nguyen  
Jacklyn L. Norman  
Glenn A. Otto  
Jonathan P. Parker  
William W. Parsons Jr.  
Carolyn B. Pecquet  
Herbert E. Peete  
B. Clay Robertson  
Richard G. Scaltsas  
David R. Schechter  
John E. Stealey  
Pamela P. Steel  
Vanessa K. Stromer  
David E. Taylor  
Denise K. Travers  
Francis Villalpando  
David A. Wansley  
Maria L. Wilson  
Donna J. Winchell (transferred to JSC)



(Continued on following page)



## 1996 KSC ANNUAL HONOR AWARDS

### KSC Certificate Of Appreciation

This award is intended to recognize significant contributions made by NASA employees, individual citizens, contractors or public organizations to Center endeavors.

#### NASA Employees:

Charles F. Abell  
Kathryn D. Aglitz  
Foster E. Anthony  
Dennis W. Armstrong  
Omar Baez Jr.  
Patricia T. Beall  
Arthur E. Beller  
Joyce A. Bodor  
Delia E. Boughner  
David C. Bragdon  
Angela J. Brewer  
Hollister H. Bryan  
Brian S. Burns  
Jonathan K. Byon  
Betty P. Camp (retired)  
Kyle J. Cartier  
Leonard W. Chapman  
Verdie Cook  
Todd R. Corey  
Carol M. Cowen  
Ronnie A. Dale  
Loretta Dreier  
Gladys Escobar  
Joan M. Fosdick  
Lisa A. Fowler  
John G. Fraley  
Fabiola C. Frank  
Tracey E. Fredrickson  
A. Earl Gilbert  
Miroslava J. Guisbert  
Pamela R. Hales  
Douglas B. Hammond  
Tyrell J. Hawkins  
Jane A. Hodges  
Joy N. Huff  
Cheryl C. Hurst  
William R. Johnson  
Helen M. Johnson  
Gregory N. Katnik  
David A. Kruhm  
Maurice J. Lavoie  
Teresa M. Lawhorn

James D. Lichtenthal  
Martin J. Loughheed  
David R. Makufka  
Carolyn E. Mariano  
William R. May  
Peter V. Mazurkivich  
Monique M. McLamb  
Mary K. Mease  
Robert G. Merrilees  
Patricia J. Metcalfe (retired)  
Donald J. Minderman  
Valencia B. Mitchell  
Michael D. Mohr  
Elizabeth Morris  
Deborah L. Morris  
Abraham Negron  
Anita L. Nesbit  
Frank Nesbit  
Shirish R. Patel  
Christina E. Pechon-Greer  
Jose Perez-Morales  
Harry Plaza  
Mary H. Poitier  
James Quinn  
C. Wayne Ranow  
David D. Reeves  
Jorge E. Rivera  
Rosamund L. Rock  
Charlene A. Sarver  
Julie A. Schneringer  
Sandra Shaheen  
Jonathan Stabb  
James E. Sudermann  
Michele R. Taylor  
Nathan G. Taylor  
Marietta Tennison  
Darrell J. Thomas  
Carl D. Thorn  
Lori Graw Thurow  
Barbara L. Vycital  
Carl O. Wallace  
Doretha Worthly

#### Contractor Employees:

Otto D. Baker	John D. Madeiros	Alfred Stevens
Brenda B. Bell	Scott R. McIntyre	John R. Thomas
Norman N. Blalock	Laurie L. McManus	Sherry Trimboli
Angela D. Croom	George A. McMonigle	Mark A. Wilderotter
Preston D. Davenport	Gary L. Minor	
Edward P. Dean	David Mohler	
Wendy J. Digulla	Michael H. Olka	
Edward C. Fambrough	Joe E. Prevo	
Rex R. Hands	Wynn Rostek	
Benjamin M. Inghram	Tony E. Shibly	
Larry W. Irminger	Richard A. Smith	
William Kempton	Michael K. Smith	
Barbara LeDuke	Raymond A. Steiner	



### Titan rollout

Titan IVB which will power the Cassini spacecraft on its interplanetary journey later this year completes its own journey to Launch Pad 40 on Cape Canaveral Air Station. Standing like silent sentinels as the huge rocket trudges by on rail are the lightning protection masts at the pad.

### FEW presents scholarship awards

The Space Coast Chapter of Federally Employed Women (FEW) recently presented scholarship awards to 10 high school and undergraduate college students.

The recipients were chosen based on their academic achievements, outside activities, an essay and references.

The recipients are: Nicole Petersen; Christie Lampard;

Heather Kanady; Deborah Grollmes; Christine Parker; Michael McBride; William Riddle III; Bruce Johnson Jr.; Barbara Bumatay; and Sara Phillips.

Scholarships ranged from \$500 to \$1,000. The FEW scholarships are offered every year in March or April for the following fall term. For more information, contact Leslie Mathews, 494-6272.



### USBI gets new top manager

Space program veteran Donald K. Reed has been named to succeed Joseph P. Zimonis as vice president and general manager of USBI Co. at KSC.



Reed

for all aspects of USBI operations at all locations and reports to Douglas A. North, president of Pratt & Whitney Space Propulsion, of which USBI is a part.

USBI is the prime contractor for the Space Shuttle solid rocket booster assembly and refurbishment program.

Prior to this promotion, Reed spent 20 years at USBI assuming positions of increasing responsibility, from senior design engineer to vice president of USBI's solid rocket booster programs. He is a native of Jasper, Ala., and a graduate of the University of Alabama. He has resided in the Huntsville area for many years.

Zimonis has headed USBI for the past six years and plans to retire.

Pratt & Whitney Space Propulsion includes liquid rocket propulsion in West Palm Beach, Fla., and solid rocket propulsion at the Chemical Systems Division in San Jose, Calif., as well as USBI Co. at KSC. Pratt & Whitney is a unit of United Technologies Corp.

# Tail cone mods and FOD prevention earn two teams high honors

The NASA/contractor Tail Cone Hazardous Access Problem Resolution Task Team and USA Operations Security Orbiter Integrity Clerks (OIC) Team were recently honored for their contributions to Shuttle safety and efficiency.

• **Tail Cone Hazardous Access Problem Resolution Task Team.** This NASA/contractor group performed a feat that had stumped many before them: Eliminating height hazards that had existed since the inception of the Shuttle program around ferry operations involving the orbiter tail cone. Their success was recognized with the KSC Group Achievement Award.

The tail cone is a fairing that is installed over the aft fuselage of the orbiter to decrease aerodynamic drag and buffet when the Shuttle Carrier Aircraft is transporting the orbiter cross-country. It is 36 feet long, 25 feet wide, and 22 feet high. The cone attaches to the orbiter with eight adjustable steel fittings.

The Occupational Safety and Health Administration had cited NASA for the height hazards during orbiter processing. The Working at Heights Hazard Abatement Team (WHHAT) was formed about five years ago to respond to the citation and assess all working conditions at KSC. Several teams were formed to tackle the tail cone height issue, but were unable to develop a solution.

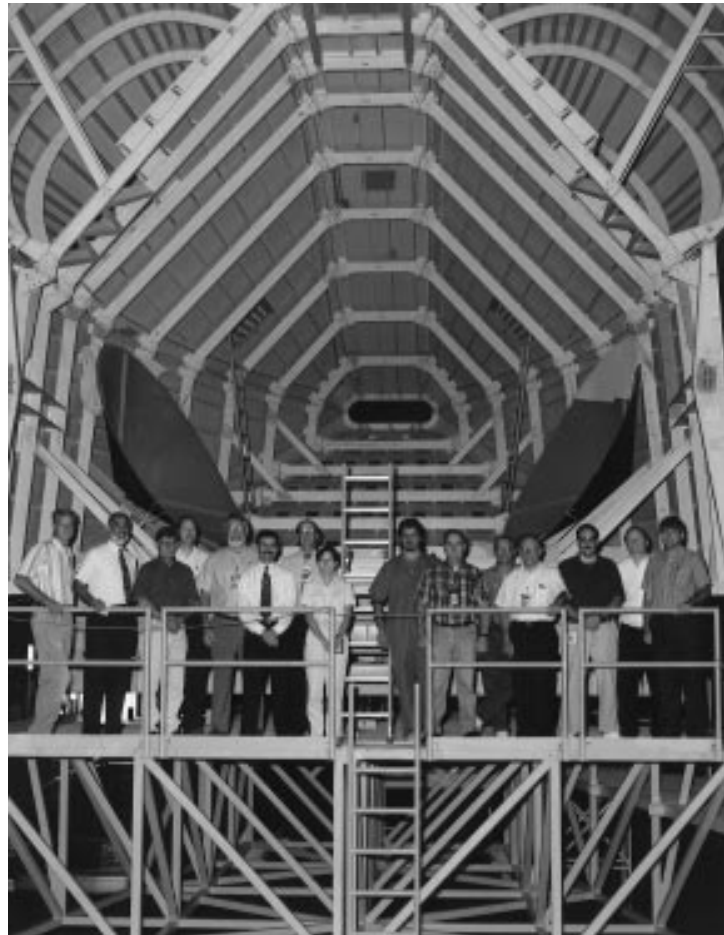
Last October, the Tail Cone Hazardous Access Problem Resolution Task Team became the latest group formed to handle the issue. Knowing the issue's past history, the group began its job not convinced it could come up with a solution.

But a positive attitude and persistence paid off, and in just six months the team was able to devise acceptable and relatively inexpensive solutions to the eight recognized problems identified during tail cone operations.

They also formulated acceptable workarounds while the permanent solutions were being implemented.

Implementation of the changes could not have occurred in a timely fashion without the support of logistics personnel and the dedicated effort of the Launch Equipment Shop (LES).

The two tail cones in the Shuttle program have both been modified. One is at Edwards Air Force Base to support West Coast end-of-mission landings. The other modified fairing saw its first operational use when the orbiter Endeavour was returned to KSC following an Orbiter Maintenance Down Period (OMDP) at the Palmdale plant in California.



INSIDE the Vehicle Assembly Building, the Tail Cone Hazardous Access Problem Resolution Task Team and tail cone technicians stand in front of one of the two tail cones they helped modify. The two structures on either side that resemble antenna dishes are referred to as "coolie hats" and are installed over the lower two empty main engine cavities for structural support during ferry operations. The team instituted numerous modifications to make the tail cone more user-friendly, including a new platform to the rear of the tail cone to allow access and new access holes and ladders to get to the Orbiter Maneuvering System area. The team also modified the portable structure on which the tail cone is mounted for mate/demate, including installation of the decking on which they are standing.

• **USA Operations Security OIC Team.** This group received the First Quarter Foreign Object Debris (FOD) Prevention Team Award for its contribution to the reduction of FOD-related incidents in and around flight hardware.

Some 5,000 items are logged in and out of the orbiter every month during a routine flow. An average flow length is about three months, which means an astonishing 15,000 non-flight items could poten-

tially be left in the orbiter to become FOD on-orbit. Clerks are typically stationed by the crew module and at the aft to monitor work in the Orbiter Processing Facility, as well as in the Vehicle Assembly Building and at the pad.

It's their job to make sure nothing is left behind, and while their vigilance doesn't always make them popular, they get the job done, said USA Operations Security Manager Ed Little.



USA Operations Security OIC team members proudly display their award in the Orbiter Processing Facility Bay 3 conference room. While there are a large number of OIC personnel, the award was granted for work performed during the first quarter.



***Hurricane  
season:  
June 1 – Nov. 30***

## Hurricane Terms:

- Hurricane Warning: Hurricane conditions are a real possibility in the local area.
- Hurricane Watch: A hurricane is expected within 24 hours.

## KSC General Hurricane Information:

- 1). The center director will establish Hurricane Conditions at KSC, and will declare when there will be a KSC shutdown to all but essential personnel.
- 2). Upon establishment of Hurricane Conditions at KSC, the KSC Hurricane Center/EOC, located in K6-2496, will be activated.
- 3). Hurricane Condition/status may be obtained by calling KSC's 24-hour Hurricane Status Hotline at 861-7900.
- 4). Additional status of weather conditions may be obtained by calling Patrick Air Force Base Weather, 494-7181.
- 5). KSC personnel should monitor local radio and television stations for official announcements and to learn whether KSC has been evacuated due to storm conditions.

## KSC Hurricane Conditions:

- Condition IV (longest alert time): 50-knot winds expected at KSC within 72 hours;
- Condition III: 50-knot winds expected at KSC within 48 hours;
- Condition II: 50-knot winds expected at KSC within 24 hours;
- Condition I: 50-knot winds expected at KSC within 12 hours.

## Hurricane Categories:

- Category 1: Wind speed, 74-95 mph. Storm surge, 4-5 feet.
- Category 2: Winds, 96-110 mph. Storm surge, 6-8 feet.
- Category 3: Winds, 111-130 mph. Storm surge, 9-12 feet.
- Category 4: Winds, 131-155 mph. Storm surge, 13-18 feet.
- Category 5: Winds, greater than 155 mph. Storm surge, greater than 18 feet.

## Everything you need to know about: *Severe Weather*

- **What:** A program on severe weather from the forecaster's perspective
- **When:** June 24, 1 – 2:30 p.m.
- **Where:** KSC Training Auditorium
- **Presented by** the 45th Weather Squadron, in coordination with the KSC Emergency Preparedness Program, 867-3795.
- **Open** to all, with supervisor's permission.



SOARING overhead (above), the return of the orbiter Atlantis to KSC is captured by a camera positioned at the south end of KSC's Shuttle Landing Facility. Mission STS-84 came to a close on May 24 as the orbiter touched down on Runway 33 at 9:27:44 a.m. EDT. Also visible in this view are the Vehicle Assembly Building and the Shuttle Training Aircraft. Personnel from contractor The Bionetics Corp. took this photo with a remotely-controlled, 35mm-camera outfitted with a fish-eye lens. Below, the STS-84 astronauts return to Houston on May 25 after spending the night in Florida. From left are Mission Specialists Edward Lu, Jean-Francois Clervoy, Jerry Linenger and Elena Kondakova; Commander Charles Precourt and Mission Specialists Carlos Noriega. Not shown in this photo is STS-84 Pilot Eileen Collins. Linenger observed that he felt much better than expected after a 132-day stay in space — the second longest in U.S. history — which included an extended stay aboard the Russian Space Station Mir. The sixth docking between the U.S. Space Shuttle and Mir also was one of the smoothest Shuttle flights to date.



John F. Kennedy Space Center

## Spaceport News

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